



The Renovator

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Threat to structural stability

Deterioration beyond original assessment

Recent renovation activities in the vacated motorpool area have uncovered some deterioration beyond what was originally assessed.

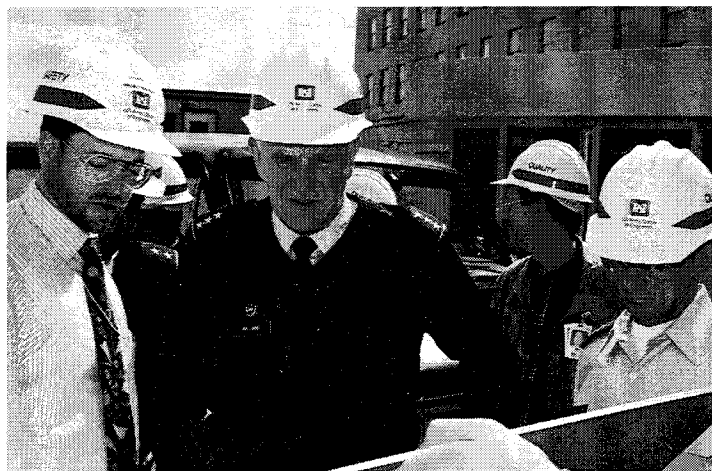
The motorpool, which was located in the basement, was vacated in March.

"Deteriorated concrete girders, columns and building expansion joints pose a threat to the structural stability of the River Terrace and former motorpool area," said Georgine Glatz, director, engineering, Washington Headquarters Services, Pentagon Renovation and Planning Office.

The full extent of the corrosion will remain unknown until River Terrace Parking, which is supported by this area, is removed.



Chris Sarver, basement project manager, points out the deterioration of the basement roof which supports River Terrace parking to Lt. Gen. Arthur Williams, chief of engineers, and Maj. Gen. Pat Stevens, director of military programs (far left).



Sarver and Williams discuss plans for the basement, while Command Sgt. Maj. James Skellion observes.

The structural repair work must be accomplished in its entirety to restore the structural stability of the River Terrace and support the current vehicular load. However, until renovation begins, deterioration continues due to persistent exposure through unsealed cracks and damaged expansion joints.

Chief of Engineers Lt. Gen. Arthur Williams also assessed this area on a recent visit to the renovation project. He compared the motorpool area with the basement area where renovation is currently underway.

While work began only six months ago, additional structural supports have been added and new flooring is already in place in some areas.

Tenants observe construction of tunnel

Pentagon tenants are keeping a watchful eye on the progress of the Center Courtyard Utility Tunnel project.

The Center Courtyard work area has become a curiosity due largely to the big construction vehicles constantly moving in the small, enclosed area that used to be the roadway between Center Courtyard Corridors 5/6, 7/8, and 9/10.

The utility tunnel being installed beneath the Center Courtyard roadway will house new steam, chilled water, natural gas, domestic water and fire protection lines. The new system will eventually replace the existing system located under the A Ring.

Work thus far has included pavement demolition, pile driving, soil excavation and removal, and lagging (wooden structural support for concrete) installation.

Noisy work, which included pavement demolition and pile driving, was conducted evenings and nights to minimize impact on tenants.

"All of the Phase One pavement demolition and pile driving has been completed," said Capt. Stephen Strain, Center Courtyard Utility Tunnel project engineer.

"Soil excavation and removal for one leg (the work area between corridors 9/10 and 7/8) has been completed to about 10 feet, and will continue on the second leg (the work area between corridors 7/8 and 5/6)," said Strain.



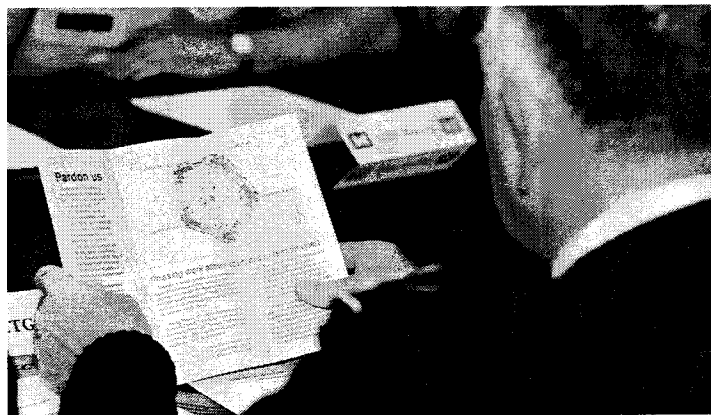
A backhoe moves soil, and construction workers install lagging in the excavated area.

The soil is excavated in approximately five feet increments before lagging is placed on the sides of the excavated area for safety reasons.

The area between Center Courtyard Corridors 7/8 and 9/10 is scheduled for completion by late summer.

The area between these two corridors will be entirely restored and reopened before work begins on the roadway area between Center Courtyard Corridors 3/4 and 5/6.

While original plans called for the closing of the first floor



During his recent visit to the project, Lt. Gen. Arthur Williams examines literature used to notify tenants of the Center Courtyard Utility Tunnel construction.

building exits at Corridors 5/6 and the A-E Drive at Corridors 9/10, the contractor and Corps determined it was feasible to leave these open after work began.

Tenants have expressed support for the project, expressing such sentiments as "it's interesting to watch," to "if it helps our heating and cooling — hurry up."

New Windows to conserve energy; preserve history

Seven thousand six hundred eighty windows. That's a lot of Windex! The Renovation Office will not be cleaning these windows, but it does face the challenge of replacing or refurbishing them during renovation.

Historic landmark

The Pentagon may seem like just another office building if you work there, but it is also a historic landmark. Renovating a historic landmark is an even greater challenge when not only the historic integrity must be protected, but must also be brought up to present technological, safety, security and energy standards.

Of the 7,680 windows, approximately 100 are located on the River and Mall Terrace sides of the building, which are considered the historical facades.

The Pentagon Renovation Office, in consultation with the Advisory Council on Historic Preservation, the Fine Arts Council, and the National Capital Planning Commission, has developed plans for replacement of 1,700 windows (with the exception of the monumental windows located at the Mall and River entrances, which will be refurbished because of their size and uniqueness).

Much like an old home with drafty windows, the Pentagon building suffers from the same deficiencies.

With major renovations of the Pentagon utility systems, to include a new Heating and Refrigeration Plant and utility distribution system, energy conservation efforts within the build-



The temporary replacement window is located at the Corridor 3 entrance. It is easily recognizable because it is installed as a "mock-up."

ing must be made to ensure maximum efficiency of the new utility system. Unless windows are replaced or refurbished, extensive energy loss will continue through the windows of the building.

"The office doesn't seem as drafty," said Dorothy Ballota, registered nurse, Civilian Health Clinic, of her "trial" replacement window.

The window was installed in the wall as a "mock-up," and can be seen by tenants as they enter the building from South Parking at Corridor 3.

The replacement double hung steel windows include an energy efficient double glazing that will help block solar heat and cold

from entering. The new double panels will also act as insulators, trapping pockets of air between the panes.

Energy efficiency of the building will improve with the installation of replacement windows, while remaining sensitive to the historic requirements of the Pentagon.

The replacement windows will look like the original windows--sight lines, frame profiles and hardware will conform to original standards. The hardware on the windows will include a clear bronze finish to match that of the existing historic double hung windows.

Additional benefits

One of the goals of the renovation is to execute an environmentally-friendly process. As part of this philosophy, "The steel from the existing windows will be recycled by the contractor installing the replacement windows," said Nolton Green, Corps technical manager for window replacement.

Replacement windows have several advantages over refurbishment of existing windows.

New glazing and reconditioning of existing hardware and frames would be necessary to ensure energy efficiency. Removal of existing paint would be required because much of it is lead-based. In addition, some of the existing windows cannot be repaired.

Window replacement is scheduled to begin in conjunction with wedge renovation.

Basement work continues during 'quiet' times

Just because tenants don't hear anything doesn't mean work has stopped in the basement.

On the contrary, work in the renovation area has progressed at a rapid pace in the last month.

Noisy work (slab demolition and pile driving), while nearing completion, continues but is limited to evening/night shifts.

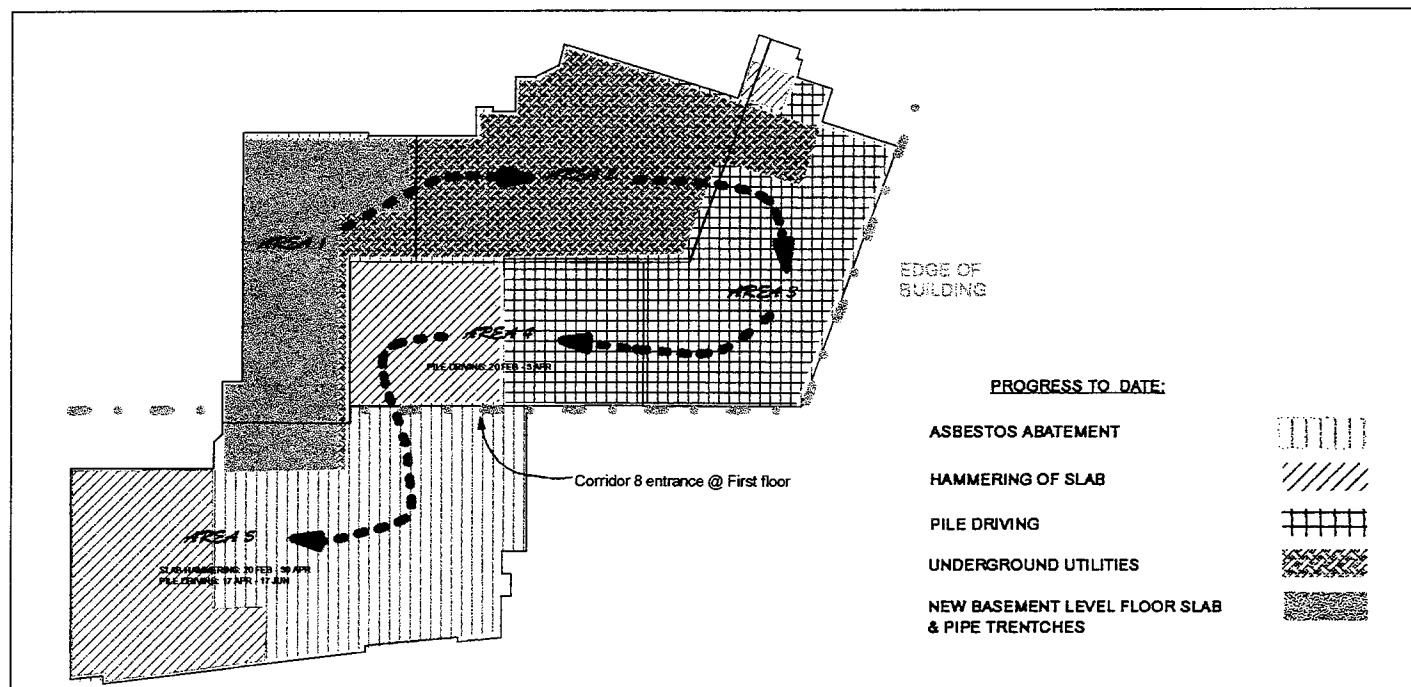
Since the shut down of noisy work during the primary day hours, tenants above the basement work area report "no problem at all," said Glenn Flood, directorate of defense information.

The area Flood and the press corps occupy is located above the basement renovation space, and the information directorate staff only occasionally "hear"

the construction work. The switch to evening hours was made to reduce impact on tenant activities.

During the day, placement of floor slab and installation of underground utilities are quickly catching up to the pile driving areas.

Underground utilities have already been installed in about one-third of the total area.



Pentagon Basement Renovation Progress as of April 12, 1995

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